

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (original): Low-resistivity n-type semiconductor diamond characterized in containing 10^{17} cm^{-3} or more of lithium atoms and nitrogen atoms together.

Claim 2 (currently amended): Low-resistivity n-type semiconductor diamond as set forth in claim 1, ~~characterized in that~~ wherein the lithium-atom concentration C_{Li} and the nitrogen-atom concentration C_N within the low-resistivity n-type semiconductor diamond are $0.1 \leq C_{Li}/C_N \leq 10.0$.

Claim 3 (currently amended): Low-resistivity n-type semiconductor diamond as set forth in claim 1 ~~or 2, characterized in that~~, wherein the low-resistivity n-type semiconductor diamond is a single-crystal diamond.

Claim 4 (currently amended): Low-resistivity n-type semiconductor diamond as set forth in claim 1, ~~characterized in that~~ wherein:

lithium atoms are doped into interstitial lattice sites between carbon atoms constituting the diamond, and nitrogen atoms are doped into sites where they replace the carbon atoms, ~~with~~; and

the lithium atoms and the nitrogen atoms holding hold arrangements

that neighbor each other.

Claim 5 (currently amended): Low-resistivity n-type semiconductor diamond as set forth in claim 4, ~~characterized in that~~ wherein the center-to-center distance between the lithium atoms and nitrogen atoms is ~~0.145 nm or more but 0.155 nm or less~~ from 0.145 nm to 0.155 nm.

Claim 6 (currently amended): Low-resistivity n-type semiconductor diamond as set forth in claim 4, characterized in having an activation energy of ~~0.05 eV or more but 0.2 eV or less~~ from 0.05 eV to 0.2 eV.

Claim 7 (original): Low-resistivity n-type semiconductor diamond as set forth in claim 4, characterized in having a resistivity of $10^3 \Omega \cdot \text{cm}$ or less.

Claim 8 (currently amended): A method of manufacturing by a vapor synthesis technique onto a substrate low-resistivity n-type semiconductor diamond doped with lithium atoms and nitrogen atoms together, ~~characterized in~~ comprising photo-dissociating a source material by photoexcitation utilizing vacuum ultraviolet light.

Claim 9 (currently amended): 9. A method of manufacturing low-resistivity n-type semiconductor diamond as set forth in claim 8, ~~characterized in that~~ further comprising irradiating an oxide of lithium set inside a chamber is

~~irradiated~~ with an excimer laser beam to scatter lithium atoms from the oxide.

Claim 10 (currently amended): A method of manufacturing low-resistivity n-type semiconductor diamond as set forth in claim 8, ~~characterized in that~~ wherein source materials for the nitrogen and carbon source materials are in gaseous form, and their supply quantities are $0.001 \leq \text{nitrogen amt.} / \text{carbon amt.} \leq 0.1$

Claim 11 (currently amended): A method of manufacturing low-resistivity n-type semiconductor diamond as set forth in claim 10, ~~characterized in that~~ wherein the nitrogen source material is nitrogen gas or ammonia.

Claim 12 (currently amended): A method of manufacturing low-resistivity n-type semiconductor diamond as set forth in claim 8, ~~characterized in that~~ wherein the wavelength of the vacuum ultraviolet light is 65 nm or more but 75 nm or less.

Claim 13 (currently amended): A method of manufacturing low-resistivity n-type semiconductor diamond as set forth in claim 8, ~~characterized in that~~ wherein during the vapor synthesis the pressure is ~~1330 Pa or more but 20,000 Pa or less~~ from 1330 Pa to 20,000 Pa.

Claim 14 (currently amended): A method of manufacturing low-resistivity n-type semiconductor diamond as set forth in claim 8, ~~characterized~~

~~in that~~ wherein during the vapor synthesis the substrate temperature is 100°C or more but 1000°C or less.

Claim 15 (new): Low-resistivity n-type semiconductor diamond as set forth in claim 2, wherein the low-resistivity n-type semiconductor diamond is a single-crystal diamond.